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The Impact of Armed Conflict and Terrorism on Foreign Aid: A Sector-Level Analysis

Piotr Lis*

School of Economics, Finance and Accounting, Coventry University

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Abstract

We examine whether armed conflict, international and domestic terrorism affect distribution of bilateral and multilateral foreign aid. We argue that the two types of aid may respond differently to security challenges because of donors' disparate objectives and aid-giving motives. The results show that armed conflict reduces the amounts of obtained aid of all types, conditional on a country being an aid recipient. Multilateral donors are also less likely to include a conflict-ridden country on a recipient list. Domestic terrorism increases bilateral aid, but this effect appears to be entirely driven by assistance from the United States, arguably a terrorist prime-target country. When we disaggregate aid flows by their purposes, we find that international and domestic terrorism are associated with increases in bilateral aid for promotion of governance, education, health and society.

Keywords: Foreign aid, international and domestic terrorism, armed conflict

*Corresponding author: piotr.lis@coventry.ac.uk

1 Introduction

What is the impact of armed conflict and terrorism that occur within a state on the probability of receiving foreign aid and its amounts? Are the effects of domestic and international terrorism identical? In spite of recent improvements in the understanding of the linkages between foreign aid, conflict and security (e.g. Balla and Reinhardt, 2008; Young and Findley, 2011; Boutton, 2014; Bezerra and Braithwaite, 2016), the full answer to this question has remained largely obscured by the complexity of the aid allocation picture where various types of aid are allocated by a number of heterogeneous donors to an even larger number of heterogeneous recipients. For example, many donors appear to specify sector-level objectives for their assistance, however, much of the debate does not disaggregate aid flows but instead treats them uniformly (e.g. Alesina and Dollar, 2000; Azam and Thelen, 2010; Nielsen, Findley, Davis, Candland, and Nielson, 2011). But why should we expect different types of aid to respond in the same way to varying levels of development, democracy, peace, stability or security? By distinguishing between bilateral and multilateral donors and disaggregating aid flows by key purposes this article uncovers some of this complexity and provides empirical evidence on the effect armed conflict and terrorism have on foreign aid receipts. Traditionally, aid giving has been seen as an altruistic redistribution of resources from developed nations to developing countries to fight poverty and promote economic growth, good governance and social development (Azam and Laffont, 2003). Nonetheless, economists and political scientists have long recognized that aid may also serve a number of strategic purposes: it may be used to extend donor's cultural, economic and political influence, strengthen military allies, achieve security objectives, or as an incentive or reward for behavior desired by the donor.[1] Whether donor's intentions are altruistic or strategic, conflict and terrorism may affect their aid allocation calculus. For example, conflict and terrorism have been shown to have negative effects on economic

growth and social development (Blomberg, Hess, and Orphanides, 2004; Collier, 2006; Gaibulloev and Sandler, 2009), thus donors whose objective is to promote growth and development may be discouraged from providing assistance to affected countries. On the other hand, a donor driven by strategic considerations may choose to use aid to support an ally in conflict or help another state in fighting terrorism before it directly affects donor's interests (Boutton and Carter, 2014). Thus, the overall relationship between aid and political violence is likely to be an outcome of opposing factors and mechanisms, which may differ across types of aid, recipients, donors and time periods. This underpins the importance of disaggregating aid flows into their respective types and components when asking whether donors give more or less aid to countries affected by armed conflict and either international or domestic terrorism. Our analysis expands the existing evidence by adding the following dimensions.

First, we consider bilateral and multilateral aid separately, whereas most studies focus only on bilateral aid (e.g. Young and Findley, 2011; Savun and Tirone, 2011; Boutton and Carter, 2014). The two types of donors are expected to react differently to various factors because of their differing policy objectives. Multilateral aid should be more responsive to the quality of policies and government in receiving countries and promote military expenditure reductions (Boyce and Pastor, 1998). This is because intergovernmental institutions are less likely to be influenced by commercial interests, strategic alliances, and geopolitical or historical considerations which often drive decisions of bilateral donors (Alesina and Weder, 2002; Kuziemko and Werker, 2006; Nunn and Qian, 2014; Bueno de Mesquita and Smith, 2016; Mamoon, 2016).

Second, we disaggregate aid into four sectors: (i) governance, (ii) education, (iii) health and social assistance, and (iv) business and trade. As discussed in the next section, investments in these sectors tend to have different implications for peace and security as well as donors' strategic interests.

Thus, we may observe different patterns across these aid flows.

Third, we distinguish between international and domestic terrorism. Since this distinction is implemented by using the data from Enders, Sandler, and Gaibulloev (2011),[2] we follow their definition of terrorism as "the premeditated use or threat to use violence by individuals or subnational groups against noncombatants in order to obtain a political or social objective through the intimidation of a large audience beyond that of the immediate victims" (Enders *et al.*, 2011, pp. 321). An attack is considered to be an act of domestic terrorism when the perpetrators, victims, target and venue all come from one country, i.e. domestic terrorism directly affects citizens and/or property of only one country. In contrast, an international attack involves perpetrators, victims, targets and/or venues from at least two countries (Enders *et al.*, 2011). Majority of existing studies consider either only international terrorism or all terrorist attacks (e.g. Azam and Thelen, 2010; Young and Findley, 2011). We postulate that from a donor's point of view domestic and international terrorism are fundamentally different because of their varying effects on donor's interests and consequently we expect different responses to these two types of violence. In particular, we would expect bilateral aid donors to be more responsive to international terrorism which is more likely to directly threaten their strategic objectives, but we also recognize that donors' sensitivity to this form of violence may be muffled by its relatively low intensity: international attacks are nearly four times less frequent than domestic ones (Enders *et al.*, 2011) and cause significantly less damage than armed conflict (Blomberg *et al.*, 2004; Gaibulloev and Sandler, 2009). We also anticipate a degree of sensitivity of bilateral aid to domestic terrorism which over time often leads to international terrorism (Enders *et al.*, 2011). Thus, donors may feel that they cannot ignore homegrown terrorism abroad and choose to provide assistance to affected countries.

Our empirical strategy is based on a two-part model estimated for 184 aid recipients over the

period from 1973 to 2007. At the gate-keeping stage a probit model is used to estimate the likelihood of receiving foreign aid, while the allocation stage makes use of the panel data properties and introduces a lagged depended variable, to account for aid-giving inertia, and recipient-fixed effects to estimate the amounts of aid allocated to recipients. Subsequently, we test the sensitivity of our results to various model specifications and estimation methods. Throughout this exercise, we are particularly interested in linkages between foreign aid and armed conflict, defined as a use of armed force causing at least 25 battle related deaths (see Gleditsch, Wallensteen, Eriksson, Sollenberg, and Strand, 2002), as well as international and domestic terrorism.

The results confirm donors' aversion to armed conflict and its substantial impact on aid allocation. Countries experiencing conflict are less likely to become recipients of multilateral aid. Having passed the gate-keeping stage, recipients with armed conflict can expect the amounts of bilateral and multilateral aid to be cut by approximately 22% and 30%, respectively. At the sector level, conflict negatively affects the probability of receiving multilateral aid within all four considered sectors, whereas bilateral donors' aversion is manifested only in aid for health and social assistance, and business and trade.

The estimates show a positive effect of terrorism on bilateral aid. Countries suffering from international terrorism seem more likely to become recipients of bilateral aid (although this effect is only marginally significant), but despite our expectations, international terrorism does not affect the amounts of received aid. The positive effect of domestic terrorism is borne out at the allocation stage: recipients of bilateral aid receive significantly higher levels of aid than their counterparts without domestic terrorism. Nonetheless, this effect appears to be driven by the United States aid. The relationship between terrorism and aid is also visible at the sector level. Both types of terrorism positively affect bilateral aid aimed at governance, education, social and health assistance. In

contrast, multilateral aid is not affected by either international or domestic terrorism.

In summary: armed conflict reduces the amount of either bilateral or multilateral aid, conditional on being a foreign aid recipient, whereas terrorism seems to increase bilateral aid for the promotion of governance, civil society, health and education.

The remainder of this article is organized as follows. First, we discuss our research hypotheses along with the existing literature. We then explain our data and their sources as well as lay out our estimation approach. In the two final sections we discuss our results and conclude.

2 Background

The economics and international relations literature is abundant with studies of determinants of foreign aid. Bandyopadhyay and Vermann (2013) review recent evidence on the donors' motives and note that over time the focus of foreign aid has moved from development to donors' strategic considerations. In an earlier study, Burnside and Dollar (2000) establish some determinants of bilateral aid and conclude that bilateral donors tend to promote their strategic political interests over poverty reduction, promotion of openness, democracy and good policies. Lis (2013) shows that they are also likely to turn a blind eye on the quality of civil rights, conflict and terrorism in oil exporting countries, but react to the size of recipient's fuel exports. Younas (2008) adds to the debate showing that OECD countries donate more to importers of goods in which the donor has a comparative advantage. A study by Fleck and Kilby (2010) echoes these findings and shows that the importance of need as a condition for aid eligibility decreased in the 1990's and relatively higher income countries have been more likely to receive aid in the aftermath of the September 11 attacks than during the Cold War. In this paper we investigate how allocation of bilateral and multilateral aid responds to armed conflict and terrorism which, as argued below,

may influence decisions of donors who are driven by either altruistic developmental motives or strategic considerations. The remainder of this section outlines our main research hypotheses along with a brief overview of the literature informing each of them.

2.1 Aid and conflict

There are several channels through which armed conflict can affect donor's decisions on aid allocation and the importance of each channel is expected to be a function of the donor's motivation. Donors who prioritize developmental impact are likely to be averse to armed conflict which causes a significant destruction of human and physical capital and consequently may reduce recipient's capacity to absorb aid, fuel corruption, retard important reforms and economic growth (Alesina and Weder, 2002; Blomberg *et al.*, 2004; Gaibulloev and Sandler, 2009). In some cases, aid may lead to a perpetuation or escalation of conflict by being misappropriated to fund military ventures (e.g. Collier, 2007, 2009; Nunn and Qian, 2014), lowering the receiving government's accountability to its population or draining high quality personnel from the public sector (Knack, 2001). On the basic technical level, reduced security increases the risks and costs associated with sending aid workers into the field, thus donors preoccupied with aid efficiency may choose to keep away from conflicted regions and spend their resources where operational costs are lower and more can be achieved for each dollar spent.

Donors who are not driven by strategic objectives may also be wary of interfering in other states' internal affairs and consequently be reluctant to provide assistance in conflict situations when two or more political groups compete for power. Yet, strategically-minded donors may see such a situation as an opportunity to further their interests by providing aid to their preferred party, hoping to assert its advantage in conflict. According to this logic, donors willing to gain access

to conflict or influence its outcome would favor conflict-stricken states at the gate-keeping stage, while those preoccupied mostly with development would focus their scarce resources on recipients more capable of sustaining stability and economic growth (see Balla and Reinhardt, 2008). Nevertheless, even strategically-minded donors may be discouraged by armed conflict that is inevitably linked to high levels of political risk (Mamoon, 2016). The instability and internal tensions reduce transparency and elevate the risks of corruption and misappropriation of aid funds (Le Billon, 2003), potentially reducing donor's influence on the delivery of agreed objectives. Furthermore, donor's commercial interests may suffer from a destruction of resources, reduced income base, uncertain property rights as well as increased operating and trading costs in an affected country.[3]

Following these arguments, we state our first hypothesis:

Hypothesis 1 *Armed conflict within a country reduces country's probability of receiving foreign aid and its amount.*

We verify the validity of this hypothesis by applying it separately to total bilateral and multilateral aid as well as their sectoral variants. Our discussion indicates that depending on donor's motives, the expected utility of aid may be affected by armed conflict in different, possibly contrasting, ways and thus the net effect may either cause aid to decrease, increase or remain unchanged. This makes us reluctant to formulate expectations with respect to this hypothesis. Although, we expect multilateral donors to be somewhat more conflict averse than their bilateral counterparts who are more likely to be driven by strategic political or commercial interests.

2.2 Aid and counterterrorism

As in the case of conflict, there are several channels through which terrorism may affect distribution of foreign aid and their proclivity is likely to depend on donor's motives as well as the type of terrorism, domestic or international. The aftermath of 9/11 saw the researchers' increased interest in the political instability and aid nexus. For example, Chauvet (2003) and Bezerra and Braithwaite (2016) find that relatively low levels of instability have a positive impact on aid allocation as donors attempt to safeguard their interests. However, when the intensity of violence increases, the higher threat to donors' commercial and strategic objectives may persuade them to shift their attention, and consequently money, to more stable places. This shows the importance of distinguishing between potentially opposing aid effects of armed conflict, typically associated with high levels of violence and destruction, and terrorism which entails lower levels of instability and thus is more likely to have a positive effect on aid.

Strategically-minded donors may use aid as a tool in combating terrorism as the recipient's counterterrorism efforts demonstrate substitutability with donor's own security measures and may allow to thwart terrorism at its origin, before it spreads to the donor's homeland or affects their interests elsewhere (Bandyopadhyay, Sandler, and Younas, 2011). Indeed, countries targeted by international terrorism have been shown to respond by assisting states from which this activity originates. For example, the United States provides aid to countries within whose borders terrorists threatening the US security operate (Boutton and Carter, 2014). We argue that also domestic terrorism may have an aid-attracting effect because prime-target bilateral donors may wish to preempt the "evolution" of domestic into international terrorism, a process which often happens over time (Bapat, 2007; Enders *et al.*, 2011). Furthermore, foreign assistance may appear necessary to aid states with a terrorism problem because many of them are relatively poor and unable to afford counterterrorism

measures on their own (Enders and Sandler, 2006; Lis, 2011).

The approach of aiding terrorism-plagued countries may be effective: Azam and Delacroix (2006) and Young and Findley (2011) provide evidence that increased aid results in reduced levels of terrorism originating from the receiving country. Azam and Thelen (2008) indicate that the assistance does not have to be a direct reimbursement for counterterrorist efforts in order to result in reduction of terrorism. Assistance given to other areas, such as education or healthcare, may help the receiving government to free up more resources for fighting terrorism as well as increase the opportunity cost of violence by improving population's living standards (Meierrieks and Gries, 2012; Caruso and Schneider, 2013).

Nevertheless, tying aid to counterterrorism may backfire because it sends a signal of the donor's strategic security interests and instills confidence in the recipient that aid is unlikely to be withdrawn even if a part of it is squandered or misdirected. As a result, the recipient's dedication to achieving objectives set by the donor may be limited. This unfavorable outcome might be amplified by the lesson coming from the principal – agent model: if a government is receiving assistance to fight terrorism, it may be not in its best interest to eliminate the threat completely as this could stop future aid flows (Bandyopadhyay *et al.*, 2011). This assertion is supported by the evidence that some types of aid prolong terrorist campaigns (Bapat, Hall, and Hill, 2011), make targets associated with the donor country more valuable to terrorists and consequently may increase attacks against donor's citizens and interests (Neumayer and Plümper, 2011).

We formulate the following hypotheses:

Hypothesis 2 *Countries with terrorist activity within their borders are more likely to become recipients of bilateral aid and its amounts increase with the intensity of terrorism.*

Hypothesis 3 *Multilateral aid is unaffected by the occurrence of terrorism in a receiving country.*

We anticipate different responses from bilateral and multilateral donors because the latter focus mostly on the promotion of widely defined development and are not driven by strategic security considerations (Boyce and Pastor, 1998). Typically, intergovernmental donors are not required to ensure security of their territory or citizens, thus do not have the same incentives to increase aid assistance to terrorism-affected states. Terrorism is also unlikely to lead to a reduction in aid because, unlike armed conflict, it causes limited destruction and in most cases has negligible effect on growth (Blomberg *et al.*, 2004).

2.3 Sectoral aid and violence

Donors wishing to fight terrorism and prevent armed conflict may feel inclined to direct their assistance towards particular activities or sectors. The literature to date has showed that resources dedicated to some purposes can be more effective at reducing instability and therefore we formulate our next hypothesis:

Hypothesis 4 *The response of foreign aid to armed conflict and terrorism differs across aid sectors.*

In this study we focus on foreign aid dedicated to four sectors: education, government and governance, business and trade, and health and social programs. The four sectors have been selected on the basis of their expected impact on the root-causes of terrorism as well as significance for the prevention of violence, as emphasized in earlier literature (e.g. Azam and Thelen, 2008; Young and Findley, 2011; Savun and Tirone, 2011; Selaya and Sunesen, 2012).

Conflict and terrorism are often explained by existing or new grievances, the resource mobilization or opportunity cost theories (e.g. Piazza, 2011). Each of the above types of aid is likely to feed into one or more of these channels. For example, investments in education and health services

may increase the opportunity cost of violence by improving human capital and development in a wider sense, thus increasing aid dedicated to such programs may be a viable option for donors who wish to reduce violence. Hence, we propose the following auxiliary hypotheses:

Hypothesis 4a *Education aid to a country is an increasing function of terrorism within this country's borders.*

Hypothesis 4b *Countries afflicted by conflict and terrorism receive more aid for health and social purposes.*

Educating societies, especially their male youth, is often perceived as an antidote to radicalization and a part-solution to terrorism: better schooling and promoting useful skills instead of extremist values have been shown to reduce terrorism (Azam and Thelen, 2008; Young and Findley, 2011). Nevertheless, the effect of education on terrorism appears to be contingent on good political, social and economic environment, and a sound structural change may be required before terrorism is reduced through investment in education (Brockhoff, Krieger, and Meierrieks, 2015; Elbakidze and Jin, 2015). Since investment in these two sectors is not likely to be a priority in resolution of an ongoing armed conflict (aid for health and social purposes does not include humanitarian or emergency assistance), we expect that a response of this form of aid to conflict will not be different from that of total aid.

Aid for promotion of democracy and governance may reduce grievances by improving a system of internal political checks and balances, or giving voice to those feeling oppressed and discriminated. It may also empower the parts of society which oppose extremism and violence (Savun and Tirone, 2011). Thus, donors may determine that states at risk of political instability and violence deserve additional external support in these areas. This brings us to our next auxiliary hypothesis:

Hypothesis 4c *Donors increase aid aimed at promoting good governance to countries affected by*

conflict or terrorism.

In countries afflicted with terrorism, an increased provision of governance aid may prove necessary for boosting government's capacity to address the terrorist threat. Terrorist organizations often choose poorer and weaker countries for their bases and operations, where fragile governments struggle with provision of adequate security (Enders and Sandler, 2006). In the presence of armed conflict, a strategically-minded donor may feel compelled to provide assistance to a friendly regime or deny it to a government deemed undesirable.[4] Overall, we expect terrorism to have a positive impact on governance aid, whereas the effect of armed conflict is uncertain.

Our final auxiliary hypothesis concerns aid directed towards business and trade promotion which can boost physical capital in the receiving country (Selaya and Sunesen, 2012), and subsequently increase the opportunity cost of violence, making terrorism and conflict more costly to perpetrators. Nonetheless, we expect the impact of violence on this aid sector to be dependent on its intensity:

Hypothesis 4d *Terrorism has a positive effect on the probability of receiving business and trade aid and its amount, whereas the effect of armed conflict is negative.*

Some donors may wish to assist countries affected by terrorism in order to achieve their strategic security objectives and improve resilience of business sectors in which they have commercial stakes. This seems plausible for bilateral donors who are potential prime-targets of terrorism originating from receiving countries or those who have substantial business and trade presence in such states. However, the much higher levels of risk and destruction associated with armed conflict are likely to make both bilateral and multilateral donors divert their resources away to places with better capacity for aid absorption or more favorable business and trade environment.

We believe that the disaggregation of aid flows into respective sectors is a valuable contribution to the literature, but we also realize that it may prove to be of a limited significance for three

reasons. First, various types of aid may have an indirect effect on violence by allowing a receiving government to free up domestic resources in one area and shift them towards counterterrorism or conflict prevention. Second, according to some accounts as much as 65% of sectoral assistance is used outside the targeted sectors (Pettersson, 2007). Third, in spite of representing the largest dedicated aid categories, these four sectors put together account for only 25% and 42% of bilateral and multilateral aid, respectively (see Appendix Table A1). The remainder of aid commitments is either unspecified, fungible or divided between a considerable number of smaller sectors. Summarizing our hypotheses, we expect both types of donors, bilateral and multilateral, to be averse to onsets of armed conflict, but differ in their responses to terrorism. Bilateral aid to countries with terrorism within their borders is expected to increase, whereas multilateral aid to remain indifferent to terrorism. The next section briefly describes the data sources and explains our empirical strategy.

3 Empirical strategy

3.1 Data sources

Table 1 reports the data sources used in this study along with basic summary statistics. The figures on foreign aid, and its respective sectoral components, in constant dollars are drawn from the Project-Level Aid 1.9.1 database made available by AidData.org (Tierney, Nielson, Hawkins, Roberts, Findley, Powers, Parks, Wilson, and Hicks, 2011). The dataset includes development finance in a form of either loans or grants from governments and inter-governmental organizations. For our analysis, we use the data on commitments[5] – a similar approach is taken by, among others, Nielsen *et al.* (2011), Young and Findley (2011) and Bermeo (2011).

To address the core question of this study, we introduce three measures of political violence. The data on domestic and international terrorism are taken from Enders, Sandler, and Gaibulloev (2011) who separated the Global Terrorism Database (GTD) into the respective components. Their dataset reports 44,487 domestic and 10,564 international attacks over the analyzed period. The data on armed conflict are drawn from the UCDP/PRIO Armed Conflict Dataset Version 4-2009, which lists situations "where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths" (Gleditsch *et al.*, 2002). This includes wars and minor conflicts of either external or internal nature. Based on this dataset, we generate an indicator variable which takes a value of one if a country experiences a conflict in a given year or zero otherwise.

The data on population along with the two macroeconomic variables are drawn from the Penn World Table Version 7.1 (Heston, Summers, and Aten, 2012), which is commonly used in the literature and does not require detailed introduction. The population size may represent a "need variable" and be particularly relevant for setting aid levels: a more populous country will require more resources than an equally wealthy state with smaller population to achieve the same social impact of an aid program. The two macroeconomic variables are real GDP per capita in constant dollars, which is another "need variable" and has been shown to play an important role in aid allocation (Balla and Reinhardt, 2008; Bandyopadhyay and Vermann, 2013; Bueno de Mesquita and Smith, 2016), and country openness measured as the share of exports and imports in country's GDP. The latter may serve as an indicator of good economic policies, but also may be a variable of interest to bilateral donors from the perspective of trade promotion. Namely, aid helps to finance trade deficits and promotes higher consumption in developing nations, boosting their imports from richer countries (Temple and Van de Sijpe, 2017).

Table 1: Summary statistics and data sources

Variable	Mean	St. dev.	Min	Max	Data source
Bilateral aid (mln USD)	251.57	660.00	0	18339.2	AidData.org
Multilateral aid (mln USD)	322.38	1075.23	0	37720.5	AidData.org
Population ('000s)	29919	112376	15.60	1310584	Penn World 7.1
GDP per capita (USD)	8898.06	11359.9	160.80	100111	Penn World 7.1
Openness	71.69	46.68	1.161	428.955	Penn World 7.1
Civil liberties	3.80	1.918	1	7	Freedom House
International attacks	1.713	6.534	0	135	GTD*
Domestic attacks	7.214	33.34	0	673	GTD*
Conflict	0.159	0.366	0	1	UCDP/PRIO

* Decomposed dataset made available by Enders *et al.* (2011).

Previous studies show a significant relationship between received aid and recipients' level of civil liberties and democracy (e.g. Chauvet, 2003; Younas, 2008; Savun and Tirone, 2011). Therefore, we use the Freedom House (2010) civil liberties index which grades states on a scale from one to seven, with one representing the highest degree of freedom and seven the lowest.[6]

Bringing the above variables together yields an unbalanced panel dataset for 184 countries covering years from 1973 to 2007. The choice of 1973 as the starting year is motivated by the fact that prior to this date, the information included in AidData and GTD is rather spotty. The selection of 2007 as the ending point is dictated by the availability of decomposed terrorism data in Enders *et al.* (2011). The remainder of this section discusses the estimation method.

3.2 Estimation method

The most common method of estimating the aid allocation process has been the selection model. For example, Boutton and Carter (2014) use the Heckman two-step method, while Bueno de Mesquita and Smith (2007) base their empirical strategy on logit and fixed effects panel regressions without the Heckman correction. The selection model approach divides the process into the gate-keeping and allocation stages. At the gate-keeping stage donors choose countries to which aid is given and at the allocation stage they decide the amounts of aid granted to selected recipients. This paper follows the distinction between the two phases and employs the two-part model (2PM) as discussed by Vance and Ritter (2014). The two authors note that the Heckman selection bias correction procedure assumes that observations are missing but in the context of foreign aid allocation they should be treated as actual zeros: we can observe whether aid was granted so there is no Heckman-style selection problem. The results of the Heckman procedure are interpreted as potential results which means that they measure the effect of an explanatory variable on foreign aid allocation irrespective of whether aid was expended or not. Vance and Ritter (2014) recommend the use of

2PM which gives actual outcomes, i.e. coefficients measure the effects of explanatory variables on the actual amount of aid allocated. The 2PM model is similar to the Heckman approach in that it also involves the estimation of probit and OLS regressions. The main difference lies in the model specification: 2PM does not include the inverse Mills ratio in the second stage regression and does not require the specification of the exclusion restrictions, variables that uniquely determine the selection process and are not included in the allocation equation. This may be seen as an advantage because valid exclusion restrictions are often difficult to find.[7]

We estimate the 2PM model in which the gate-keeping stage is estimated by probit regressions, while the allocation stage is conditional on a country being an aid recipient ($Y_{i,t} > 0$) and additionally includes a lagged dependent variable (LDV) and recipient-specific fixed effects. Our econometric model can be written as follows:

$$\text{Selection stage:} \quad \alpha_1 + X_{i,t-1}\gamma + \theta_{1t} + \epsilon_{1i,t} > 0, \tag{1}$$

$$\text{Allocation stage:} \quad Y_{i,t} = Y_{i,t-1}\lambda + \alpha_2 + X_{i,t-1}\beta + \theta_{2t} + \eta_i + \epsilon_{2i,t}, \tag{2}$$

where $Y_{i,t}$ is the natural log of foreign aid, α_1 and α_2 are constants, $\epsilon_{1i,t}$ and $\epsilon_{2i,t}$ are recipient clustered error terms, and $X_{i,t-1}$ is a vector of lagged explanatory variables including armed conflict, log of the number of international or domestic terrorist attacks, log of population, log of GDP per capita and its square, log of economic openness,[8] civil liberties, and dummies denoting the Cold War and post-9/11 periods. The inclusion of the latter two dummies is motivated by possibly different attitudes of donors towards aid and security threats during the Cold War period (see Boschini and Olofsgård, 2007; Bueno de Mesquita and Smith, 2007; Bandyopadhyay and Vermann, 2013) and at the onset of the "War on Terror". The attacks of September 11, 2001, were followed by declarations from many world leaders that they would use foreign aid to fight terrorism through poverty alleviation (Young and Findley, 2011). Thus, the inclusion of the two

indicator variables enables us to control for potential changes in the aid giving regimes.

Regressions of both stages include year-specific effects, θ_{1t} and θ_{2t}, that absorb temporal shocks common to all recipients, e.g. swings in the global business cycle, global changes in attitudes towards foreign aid as well as global trends in types of observed violence. In addition, the allocation stage equation includes recipient fixed effects, η_i, to limit the risk of results being driven by time invariant characteristics of aid receiving countries, such as geographical location, landmass, colonial history, the degree of ethnic heterogeneity, cultural and linguistic proximity to a donor, dominant religion, etc.

The inclusion of LDV in the allocation stage accounts for donors' inertia when deciding the amounts of aid expended and deals with the autocorrelation problems (Carter and Signorino, 2010). It also creates a risk of biased estimates in the fixed-effects setting, but this should be negligible in models with large N and T, as in our case, and any bias is concentrated in the coefficient on LDV (Judson and Owen, 1999), which is not of main interest in this study.

Finally, all models use yearly observations and the explanatory variables are lagged by one year, a common practice in the aid literature (e.g. Balla and Reinhardt, 2008; Savun and Tirone, 2011; Dreher and Fuchs, 2011; Boutton and Carter, 2014). In a recent article, Bellemare, Masaki, and Pepinsky (2017) warn against this practice as a solution to endogeneity problems as it replaces a "selection on observables" assumption with an untestable assumption of "no dynamics among unobservables". However, Bellemare *et al.* (2017) also emphasize that lagging explanatory variables is appropriate when theory suggests that causal effects work with a time lag, as it is in our case, then the lag identification allows for a correct estimation of regression coefficients as well as helps to overcome potential endogeneity bias. Our identification assumption that aid allocated in year t is determined by conditions observed in year $t-1$ is chiefly motivated by the expectation that

donors' aid policies respond with a delay due to a time lag in variables of interest being reported by prospective recipients (an information lag) as well as donors' own budget planning procedures (a decision-making lag). Mosley (1985) and Boschini and Olofsgård (2007) argue that current year's spending of aid agencies is predominantly determined by the previous year's budgets. Thus, current levels of explanatory variables are unlikely to affect current year's aid, unless in some exceptional circumstances of dramatic changes in the donor's or recipient's behavior. In addition, the potential endogeneity worry that time invariant factors that determine both the occurrence of violence and aid decisions may bias the estimation results is, at least partly, alleviated by the inclusion of recipient-specific fixed effects (Bellemare *et al.*, 2017).

4 Results

This section discusses the empirical results obtained through the estimation of the two-part model (2PM). We begin with the discussion of the results for aggregated aid. Table 2 is divided into two panels – one with the estimates for total bilateral aid and another one for total multilateral aid. The first two columns in each panel show coefficients for international terrorism, while the remaining two columns show estimates for domestic terrorism.

4.1 Armed conflict

The estimates in Table 2 confirm our expectation that multilateral donors tend to be more conflict averse than their bilateral counterparts. Bilateral donors, who are more likely to be driven by strategic geopolitical or commercial interests, appear to respond differently to conflict at the two stages of the aid giving process. They do not exclude conflict-ridden countries at the gate-keeping stage, but grant them smaller amounts of aid at the allocation stage. The response to armed conflict is likely to differ across bilateral donors just as their strategic considerations do,

Table 2: Results of the 2PM estimation (dependent variable: log aid)

	Bilateral aid				Multilateral aid			
	Selection	Allocation	Selection	Allocation	Selection	Allocation	Selection	Allocation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Conflict_{t-1}	0.263	-0.310***	0.266	-0.357***	-0.700***	-0.224***	-0.697***	-0.216***
	(0.443)	(0.0968)	(0.429)	(0.103)	(0.246)	(0.0793)	(0.246)	(0.0818)
$\ln(\text{intl. attacks})_{t-1}$	0.0867*	0.0356			0.0365	0.0133		
	(0.0447)	(0.0271)			(0.0425)	(0.0203)		
$\ln(\text{domestic attacks})_{t-1}$			-0.0165	0.0567**			0.0098	0.0039
			(0.0367)	(0.0256)			(0.0459)	(0.017)
$\ln(\text{Aid})_{t-1}$		0.163***		0.163***		0.091***		0.091***
		(0.0165)		(0.0165)		(0.0134)		(0.0134)
$\ln(\text{population})_{t-1}$	-0.153	0.316	-0.12	0.320	-0.079	-0.0222	-0.0704	-0.0202
	(0.116)	(0.437)	(0.117)	(0.436)	(0.101)	(0.363)	(0.101)	(0.363)
$\ln(\text{GDP pc})_{t-1}$	7.302***	5.135***	7.554***	5.020***	11.10***	4.840***	11.17***	4.850***
	(1.815)	(0.917)	(1.797)	(0.905)	(1.651)	(1.141)	(1.655)	(1.145)
Squared $\ln(\text{GDP pc})_{t-1}$	-0.532***	-0.363***	-0.546***	-0.355***	-0.763***	-0.330***	-0.767***	-0.330***
	(0.108)	(0.0602)	(0.107)	(0.0594)	(0.103)	(0.0751)	(0.103)	(0.0753)
$\ln(\text{openness})_{t-1}$	-0.429	0.255**	-0.461*	0.255**	-0.213	0.0788	-0.213	0.0768
	(0.272)	(0.117)	(0.270)	(0.115)	(0.255)	(0.127)	(0.255)	(0.127)
$\text{Civil liberties}_{t-1}$	-0.250***	-0.0709**	-0.261***	-0.0732**	-0.159*	-0.0792***	-0.160**	-0.0791***
	(0.0944)	(0.0330)	(0.0940)	(0.0332)	(0.0813)	(0.0303)	(0.0816)	(0.0303)
Cold War	-3.847***	-0.673**	-3.809***	-0.610*	-3.646***	-0.506*	-3.625***	-0.500*
	(0.479)	(0.336)	(0.473)	(0.337)	(0.469)	(0.283)	(0.474)	(0.285)
Post 9/11	-0.631*	0.0248	-0.638*	0.0179	-0.166	0.229	-0.166	0.230
	(0.368)	(0.175)	(0.360)	(0.175)	(0.347)	(0.149)	(0.346)	(0.149)
Constant	-13.95*	-5.337	-15.38*	-4.892	-31.56***	-0.0046	-31.95***	-0.080
	(7.982)	(4.822)	(7.918)	(4.794)	(6.968)	(4.690)	(6.975)	(4.705)
N	5545	4638	5545	4638	5545	4256	5545	4256
Recipient fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Recipient clustered standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

for example, some may wish to gain access to conflict or influence its outcome and thus favor conflict-ridden states at the selection stage, whereas others may be characterized by high levels of conflict aversion. Consequently, a potential worry is that our estimates representing an average effect may be driven by a handful of large donors. We address this concern in the robustness analysis section where we re-estimate the regressions in Table 2 excluding aid flows from the three largest aid donors (see Table 4).

In contrast, the effect of an onset of armed conflict on the likelihood of becoming a multilateral aid recipient is statistically significant and negative, thus confirming our earlier expectation. This category of donors is assumed to prioritize the developmental impact of aid, which is likely to be retarded by a significant destruction of human and physical capital, high levels of conflict-related instability and diminished transparency. Additionally, multilateral donors may shun conflict-ridden states as granting aid requires an agreement of their member states, who may have conflicting perceptions of the conflict and favor opposing sides. Similarly to their bilateral counterparts, multinational donors tend to punish conflict by reducing the amount of awarded aid. In both cases the negative impact of conflict on aid amounts may be possibly driven by recipient's limited capacity to effectively administer and absorb external assistance as well as high levels of political risk which may jeopardize achieving donors' objectives, whether developmental or strategic.

Since the conflict variable is lagged by a year, one could argue that it does not capture a situation when donors impose an immediate freeze on aid flows in a face of a new conflict,[9] or that the aid receipts in year t are driven by reconstruction efforts in response to an outbreak of conflict in year $t-1$. We test the sensitivity of our results by applying different lags $t-s$, $s=0,1,2,...,5$, to the conflict variable and find results consistent with those in Table 2 for all lags. The lag of one year appears to return the strongest and most significant effect which then becomes gradually

weaker as the time lag increases.

4.2 Terrorism

The results confirm our anticipation of different responses to terrorism from bilateral and multilateral donors and seem to support Hypotheses 2 and 3. Albeit, bilateral donors' response to international terrorism appears somewhat constricted in comparison to our earlier expectations. The impact of international attacks on the probability of receiving foreign aid is positive, but statistically significant only at the 10% significance level. This possibly positive effect is not transferred onto the aid amount setting stage, where the estimated coefficient is not distinguishable from zero. Thus, in spite of our expectations, bilateral aid shows a limited response to international terrorism. However, the amounts of bilateral aid increase significantly in response to domestic terrorism once the gate-keeping stage is passed.

As already explained, it is impossible to deduct a single causal mechanism with the available evidence. For example, it may be the case that violence poses a threat to bilateral donors' political or economic interests in the affected country, therefore they prioritize assistance to states with international terrorism in an attempt to reduce the risks to their interests. The result for domestic terrorism is likely to be driven by its much greater frequency compared to international terrorism and worries of some prime-target donors that over time domestic terrorism may spill over to their homelands, as cautioned by Enders *et al.* (2011). Thus, such donors may decide to subsidize counterterrorism efforts of poorer and less capable states, i.e. use aid as a tool in preventing and combating terrorism. As expected, multilateral donors do not respond to either type of terrorist attacks. This insensitivity to terrorism could be explained by the absence of a direct security motive for multinational aid organizations. Unlike armed conflict, terrorism causes limited destruction, has comparably smaller impact on the capacity to absorb aid and in most cases has negligible effect on growth (Blomberg

et al., 2004), thus donors with primarily developmental goals may not perceive this form of violence as a major threat to achieving their objectives.

4.3 Control variables

The results for control variables are consistent with the existing literature and comparable across the two donor types, with the main difference lying in the effect of trade openness. The size of a country's population does not appear to have a significant effect on aid allocation, this is congruous with Alesina and Dollar (2000) and Fleck and Kilby (2010). GDP per capita enters the regressions twice: in linear and quadratic forms. The positive linear coefficients suggest that the likelihood of receiving aid and its amount increase in income, while negative quadratic coefficients indicate that this is happening at a decreasing rate and eventually a point is reached after which the income-aid relationship becomes negative (see Bjerg, Bjornskov, and Holm, 2011, for a more detailed discussion).

Although trade openness may serve as an indicator of good economic policies, it is also likely to constitute a variable of interest to bilateral donors who reward openness with larger aid flows, conditional on being an aid recipient. This result is not surprising because some donors use aid as an export promotion strategy aimed at boosting bilateral trade with aid receiving countries (Younas, 2008; Bandyopadhyay and Vermann, 2013). In contrast, economic openness does not have a significant effect on multilateral aid (consistent with Chauvet, 2003; Tingley, 2010). Open economies tend to have higher GDP and living standards (Dong, 2014) and as such may be lower on the multilateral donors' priority list. Furthermore, since open economies are favored by bilateral donors, multilateral organizations may decide that recipients' aid needs are largely satisfied by bilateral assistance.[10]

Civil liberties are measured by the Freedom House index on the scale from one to seven, with one

representing the highest degree of freedom and seven the lowest. Thus, the negative estimates in Table 2 suggest that donors reward freer countries at both stages of the aid giving process. This is in line with Bandyopadhyay (2007) who find that improvements in civil and political rights increase received aid. The Cold War period was associated with a smaller likelihood of receiving foreign aid as well as its smaller amounts. As Bueno de Mesquita and Smith (2007) explain, the rivalry between the West and the Soviet Union was often manifested in attempts to buy influence in the Third World, however, donors would have been more careful in committing themselves to giving aid because of the high risk of being outbid by the rival. The aftermath of the September 11 attacks does not appear to have any significant effect on the distribution of neither bilateral nor multilateral aid.

Finally, the amount of received aid appears to be larger for countries which were receiving aid in previous years. This could be explained by a number of possible factors, including the donor inertia, established and functioning aid links and programs, as well as accumulated skills and experience in obtaining and spending foreign assistance.

4.4 Sectoral aid

In addition to distinguishing between bilateral and multilateral flows, we analyze assistance to the following sectors: government, education, social and health programs, and business and trade. Table 3 shows a summary of the 2PM estimation results for armed conflict, international and domestic terrorism by sector. For brevity, we do not show estimates for the control variables, which are consistent with those in Table 2. Overall, bilateral donors seem to respond mainly to terrorism, whereas multilateral donors are less likely to provide assistance in any of the four sectors to conflict-ridden countries. Recipients who pass the gate-keeping stage successfully are not penalized for conflict in terms of aid amounts.

Table 3: Aid by sectors (dependent variable: log aid)

	Government		Education		Social & Health		Business & Trade	
	Selection	Allocation	Selection	Allocation	Selection	Allocation	Selection	Allocation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Bilateral aid				
Conflict_{t-1}	-0.144	-0.19	-0.177	-0.059	-0.322**	-0.024	-0.281**	-0.231
	(0.122)	(0.145)	(0.143)	(0.111)	(0.153)	(0.0799)	(0.133)	(0.153)
$\ln(\text{intl. attacks})_{t-1}$	0.0555**	0.0582*	0.0213	0.060**	0.0709**	0.0082	0.0158	0.0068
	(0.0260)	(0.0345)	(0.0327)	(0.0302)	(0.0304)	(0.0293)	(0.0285)	(0.0434)
$\ln(\text{domestic attacks})_{t-1}$	0.0845***	0.0713**	0.0815***	0.0584**	0.102***	0.0145	0.0331	-0.0176
	(0.0227)	(0.0301)	(0.0253)	(0.0244)	(0.0272)	(0.0221)	(0.0203)	(0.0311)
				Multilateral aid				
Conflict_{t-1}	-0.351***	-0.133	-0.162*	-0.167	-0.205**	-0.236	-0.375***	-0.227
	(0.0883)	(0.172)	(0.0877)	(0.197)	(0.0853)	(0.186)	(0.106)	(0.160)
$\ln(\text{intl. attacks})_{t-1}$	-0.0033	0.0636	0.0074	-0.004	0.0455**	0.070*	-0.0085	-0.0117
	(0.0184)	(0.0510)	(0.0222)	(0.0456)	(0.0199)	(0.0397)	(0.021)	(0.0371)
$\ln(\text{domestic attacks})_{t-1}$	0.0111	0.0111	0.009	0.0409	0.0317**	0.001	0.0113	-0.0442
	(0.0172)	(0.0446)	(0.020)	(0.0394)	(0.0157)	(0.0354)	(0.0195)	(0.0271)

Recipient clustered standard errors in parentheses.

All regressions include control variables and year dummies, allocation regressions include recipient fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

More specifically, the likelihood of receiving bilateral governmental aid and its amount increase with the frequency of international and domestic terrorism in a receiving country, showing that bilateral donors tend to support governments of countries with a terrorist problem. As discussed earlier, such assistance may appear necessary to thwart the existing terrorist threat as terrorist organizations often chose for their residence poor countries whose governments are unable to afford counterterrorism measures (Enders and Sandler, 2006).

Columns 3 through 6 of Table 3 display estimates for education, social and health purposes, thus activities aimed at improving human capital of receiving countries. In line with our expectations, countries experiencing terrorism within their borders receive greater amounts of bilateral education aid. This may indicate that donors perceive education as an antidote to radicalization and an investment in terrorism prevention, as argued by Azam and Thelen (2008), and Young and Findley (2011).

An onset of armed conflict reduces the probability of a country receiving bilateral (and multilateral) aid for social and health purposes. At first, this result may appear surprising, but then conflict-ridden countries are likely to obtain humanitarian assistance (not included in our aid figures) which may better serve their needs in crisis situations. In contrast, states with either international or domestic terrorism may find themselves more likely to receive assistance directed at the social and health sectors.

The last two columns in Table 3 refer to foreign aid promoting business and international trade. Terrorism does not seem to be linked to this type of aid (thus not confirming Hypothesis 4d), whereas armed conflict negatively influences the probability of a country becoming a recipient in this aid category from either bilateral or multilateral sources. This supports our expectation that donors find the levels of risk and destruction associated with conflict too high and prefer states

with more favorable business and trade environments.

4.5 Robustness checks

To confirm the soundness of our results and verify whether they are not driven by just a handful of donors or recipients, or model specification, we perform several robustness checks. As mentioned earlier, aid donors exhibit a large degree of heterogeneity when it comes to their objectives and motives. In addition, the aid giving appears to be dominated by a small number of bilateral and multilateral donors – top three donors in each category account for approximately 57% of aid flows. We repeat our regression analysis on the following subsamples of the data: first excluding assistance from the top three donors jointly and then excluding each of them individually. Table 4 reports the summary results of this exercise for both bilateral and multilateral aid. The signs and significance of estimates of the effect of conflict and terrorism on multilateral aid survive the treatment, however, the estimates for bilateral aid show some sensitivity to the exclusion of donors. The response to conflict turns out to be comparable to our baseline results (although dropping Japanese aid from our sample pushes the selection stage coefficient into statistical significance). The effect of international terrorism proves to be insignificant in all regressions, which is not much different from the results in Table 2, where it was significant only at the 10% significance level at the recipient selection stage. Also, the positive effect of domestic terrorism on the amounts of bilateral aid appears to be entirely driven by the United States – removing this donor from our sample makes the estimate statistically insignificant (Column 6 in Table 4). Arguably, among the top donors, the United States is a prime-target of terrorist activity and thus most susceptible to potential spill overs from domestic to international terrorism. Consequently, it may feel that assisting other countries in curbing homegrown terrorism is compatible with American strategic objectives, as argued in the earlier sections.

Table 4: Estimates excluding top aid donors

	Selection (1)	Allocation (2)	Selection (3)	Allocation (4)	Selection (5)	Allocation (6)	Selection (7)	Allocation (8)
				Bilateral aid				
Excluded donors	Top 3		Japan		USA		Germany	
Donor's share	56.6%		22.6%		20.7%		13.3%	
Conflict_{t-1}	0.390	-0.333***	0.818**	-0.246***	0.631*	-0.349***	0.266	-0.282***
	(0.273)	(0.104)	(0.398)	(0.0922)	(0.383)	(0.0899)	(0.370)	(0.0917)
$\ln(\text{intl. attacks})_{t-1}$	0.0610	0.0102	-0.0046	0.0164	-0.0359	0.0123	0.0136	0.0280
	(0.0539)	(0.0289)	(0.0634)	(0.0276)	(0.0670)	(0.0282)	(0.0766)	(0.0284)
$\ln(\text{domestic attacks})_{t-1}$	-0.0135	0.0269	-0.0321	0.0454*	0.0454	0.0237	-0.0480	0.0519**
	(0.0433)	(0.0240)	(0.0507)	(0.0258)	(0.0637)	(0.0247)	(0.0567)	(0.0256)
				Multilateral aid				
Excluded donors	Top 3		World Bank - IBRD		IMF		World Bank - IDA	
Donor's share	57.6%		27.9%		18.5%		11.2%	
Conflict_{t-1}	-0.553**	-0.238***	-0.648**	-0.292***	-0.860***	-0.268***	-0.837***	-0.232***
	(0.257)	(0.0788)	(0.272)	(0.0836)	(0.249)	(0.0754)	(0.245)	(0.077)
$\ln(\text{intl. attacks})_{t-1}$	-0.0396	0.0148	-0.043	0.0204	0.0301	0.0028	0.0308	0.0115
	(0.0410)	(0.0205)	(0.042)	(0.0223)	(0.0473)	(0.0209)	(0.047)	(0.0208)
$\ln(\text{domestic attacks})_{t-1}$	0.0296	0.0077	0.0181	0.0065	0.0577	0.001	0.0565	0.0012
	(0.0397)	(0.0174)	(0.0397)	(0.0178)	(0.0419)	(0.0175)	(0.0417)	(0.0173)

Donor's share represents the share of total bilateral and multilateral aid, respectively. Recipient clustered standard errors in parentheses.

All regressions include control variables and year dummies, allocation regressions include recipient fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The results of our remaining robustness checks are reported in Appendix. To address worries that our estimates may be driven by a handful or aid recipients, we drop the ten largest aid recipients (Table A2) and failed states, i.e. countries whose governments struggle with projection of their power, provision of security and other public services (Table A3).[11] The results of these exercises confirm those presented in Tables 2 and 3. Another worry could be that the impact of armed conflict may be driven by relatively small conflict events that are indistinguishable from terrorism. Thus, we restrict our conflict variable to only large scale conflicts with at least 1000 battle-related deaths in a year (see Table A4). In general, this exercise also tends to confirm the main conclusions from the previous sections. Finally, we compare our 2PM estimates to those obtained through estimating the Heckman selection model with correction for potential selection bias. We follow the approach proposed by Lai (2003), and Boutton and Carter (2014), and find no significant differences between the 2PM and Heckman model estimates (Table A5).

To summarize, our estimates of the effect of armed conflict on bilateral and multilateral aid are robust to various model specifications, donor and recipient exclusions, whereas the coefficients on the effect of terrorism are sensitive to the exclusion of the US aid from our sample.

5 Discussion and conclusions

The empirical analysis presented in this paper focuses on the impact of armed conflict and terrorism on allocation of bilateral and multilateral foreign aid. We employ the two-part model (2PM) and split the aid giving process into two stages: the selection stage at which donors choose countries to receive foreign assistance, and the allocation stage at which donors decide amounts of granted aid. On the sector level, our study considers the impact of conflict and terrorism on assistance related to governance, education, social and health programs as well as business and trade, the four sectors which seem vital for the promotion of peace and stability.

In general, the results confirm our expectations that armed conflict and terrorism play a role in aid donors' decision making process. They also tend to suggest that the two types of aid, bilateral and multilateral, are driven by somewhat different objectives. For instance, while multilateral donors shun states in armed conflict (this result holds for aggregated and sectoral aid), conflict does not affect the likelihood of a country being a recipient of bilateral aid, although it does reduce its levels.

While multilateral donors appear to be indifferent to either type of terrorism, the evidence on the impact of terrorism on bilateral aid is less clear. International terrorism appears to be positively correlated with the probability of receiving aggregated bilateral aid, whereas domestic terrorism may increase its amounts, conditioned on passing the gate-keeping stage. However, the statistical significance of this result is sensitive to the exclusion of the United States from aid donors.

On the sectoral level, the effects of international and domestic terrorism on bilateral aid are significant and positive at both the selection and allocation stages for the assistance in government, education, social and health sectors. The increased assistance to these sectors should be considered as reasonable because terrorist organizations often choose poorer and weaker countries for their bases and operations, where fragile governments struggle with provision of adequate security. In such places external help may be necessary for boosting government's capacity or supporting structural improvements required to reduce grievances. Furthermore, investment in human capital may reduce the risk of radicalization of local populations as well as increase the opportunity cost of violence, thus making terrorism a less appealing option.

These findings are consistent with the principal–agent model outlined by Bandyopadhyay *et al.* (2011) in which poorer countries can count on increased foreign assistance in return for counterterrorism efforts. In such a framework, bilateral donors use foreign aid as a substitute for their own defensive

homeland security measures. Although the model suggests that donors' attention should principally be concentrated on international terrorism, domestic terrorism may also directly affect donors as it often grows to international campaigns over time (Enders *et al.*, 2011). Nonetheless, donors should be aware of an important lesson from the principal–agent model: recipients have their own objectives and preferences and therefore are unlikely to be entirely committed to eradicating terrorism within their borders as this would result in a loss of incoming aid. In a perverse situation, a recipient may resort to encouraging more terrorism in order to increase their aid receipts. Researchers still do not have a full understanding of the dynamics and interactions within the foreign assistance, development and political violence nexus. Further advancements will require a more fine-grained approach which will take into consideration country-specific conditions as well as more localized effects. Eventually, studies of effectiveness of foreign aid in curbing terrorism should account for terrorists' country of origin as at the moment there is little evidence whether aid reduces attacks performed abroad by citizens of a receiving state.

Notes

[1]Bueno de Mesquita and Smith (2016) present a theoretical model and evidence on buying policy concessions with foreign aid. Kuziemko and Werker (2006) provide evidence on the United States' behavior of buying the UN Security Council votes with foreign aid. The effectiveness of aid in achieving these objectives as well as factors influencing donors' behavior have been debated, with mixed and often contradicting results (e.g. Alesina and Dollar, 2000; Bjerg, Bjornskov, and Holm, 2011; Nourou, 2014)

[2]Enders *et al.* (2011) decompose the Global Terrorism Database into domestic and international terrorism. Unfortunately, employing this decomposed dataset limits the time span of our analysis to 2007.

[3]This is likely to apply to most but not all business sectors. Donors with commercial interests concentrated in defense or security industries may perceive conflict as a business opportunity.

[4]This "picking winners" behavior could also lead to a donor supporting a rebel group contesting a government which is undesirable from the donor's point of view. The governance aid category does not capture such transfers.

[5]AidData goes beyond aid flows included in the OECD's Official Development Assistance (ODA) and incorporates international loans at market rates as long as they constitute an effort to foster economic or social development. The dataset reports two types of figures: commitments (money allocated to an aid project by a donor) and disbursements (actual money transfers). Unfortunately, the latter figures are available for only 48.6% of records, while commitments, which should reflect donors' perception of recipients' needs and circumstances as well as be a good proxy for the funds actually donated, are reported 99.16% of the time.

[6]We also consider the dichotomous DD democracy index by Cheibub, Gandhi, and Vreeland (2009) and Polity IV (Center for Systemic Peace, 2016). The results remain consistent with those presented in the article.

[7]The 2PM model is not a universal remedy; it is based on the assumption that both stages of the model can be treated as independent conditional on the observed explanatory variables. If this assumption does not hold and the same unobserved factors affect both stages then the Heckman model should be chosen (Wooldridge, 2010). As a robustness check we also

estimate the Heckman selection model and obtain comparable results in terms of signs, significance and magnitude (see Appendix Table A5).

[8]Taking natural logs of the mentioned variables smooths the distribution of the data and increases reliability of our estimates.

[9]This worry is limited by the arguments presented in the method section and donor inertia (see Boschini and Olofsgård, 2007; Nielsen *et al.*, 2011; Boutton and Carter, 2014)

[10]In our sample, the correlation coefficient between openness and GDP per capita is 0.22 and the 25 most trade-open aid recipients receive twice as large share of bilateral aid as of multilateral aid.

[11]We used the 2005 Failed States Index, subsequently renamed the Fragile States Index (Fund for Peace, 2005), which looks at a range of social, economic and political indicators, and assesses pressures faced by a nation in each of these categories. The top ten failed states are: Chad, Democratic Republic of Congo, Cote d'Ivoire, Haiti, Iraq, Liberia, Sierra Leone, Somalia, Sudan and Yemen.

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6 Appendix

Table A1: Composition of sectoral aid

Sector	Bilateral	Multilateral
Government	9.98%	24.28%
Education	3.93%	3.42%
Health & social	5.47%	4.73%
Business & trade	5.13%	9.86%
Sectors total share	24.5%	42.3%

Table A2: Aid estimates excluding top 10 recipients (dependent variable: log aid)

	All aid		Government		Education		Social & Health		Business & Trade	
	Selection	Allocation	Selection	Allocation	Selection	Allocation	Selection	Allocation	Selection	Allocation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					Bilateral aid					
Conflict_{t-1}	0.216	-0.299***	-0.132	-0.258	-0.245	-0.0372	-0.333**	-0.102	-0.353**	-0.344**
	(0.487)	(0.103)	(0.129)	(0.163)	(0.160)	(0.124)	(0.163)	(0.0852)	(0.144)	(0.165)
$\ln(\text{intl. attacks})_{t-1}$	0.100**	0.0337	0.0626**	0.0487	0.0473	0.048	0.0758**	-0.0008	0.0325	-0.0062
	(0.0464)	(0.0257)	(0.0274)	(0.0344)	(0.0351)	(0.0326)	(0.0324)	(0.0301)	(0.0271)	(0.0471)
$\ln(\text{domestic attacks})_{t-1}$	-0.0037	0.0614***	0.0836***	0.0536*	0.0885***	0.0425	0.114***	0.0096	0.0382*	-0.0257
	(0.0383)	(0.0212)	(0.0250)	(0.0313)	(0.0271)	(0.0261)	(0.0273)	(0.0211)	(0.0209)	(0.0337)
					Multilateral aid					
Conflict_{t-1}	-0.801***	-0.251***	-0.343***	-0.156	-0.232***	-0.196	-0.259***	-0.294	-0.436***	-0.196
	(0.253)	(0.087)	(0.0967)	(0.190)	(0.0893)	(0.217)	(0.0893)	(0.189)	(0.111)	(0.178)
$\ln(\text{intl. attacks})_{t-1}$	0.0351	0.0192	-0.0149	0.065	0.0103	0.003	0.0527**	0.057	-0.0059	0.0079
	(0.0433)	(0.0230)	(0.0200)	(0.0524)	(0.0237)	(0.0513)	(0.0212)	(0.0405)	(0.0213)	(0.0414)
$\ln(\text{domestic attacks})_{t-1}$	0.0098	0.005	0.0145	-0.0165	0.009	0.0362	0.0303*	-0.026	0.0121	-0.0447
	(0.0467)	(0.0186)	(0.0194)	(0.0390)	(0.0221)	(0.0443)	(0.0163)	(0.0356)	(0.0202)	(0.0325)

Recipient clustered standard errors in parentheses. All regressions include control variables and year dummies, allocation regressions include recipient fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Aid estimates excluding top 10 failed states (dependent variable: log aid)

	All aid		Government		Education		Social & Health		Business & Trade	
	Selection	Allocation	Selection	Allocation	Selection	Allocation	Selection	Allocation	Selection	Allocation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					Bilateral aid					
Conflict_{t-1}	0.301	-0.297***	-0.102	-0.200	-0.226	-0.0457	-0.361**	-0.0232	-0.358**	-0.247*
	(0.460)	(0.111)	(0.128)	(0.149)	(0.159)	(0.122)	(0.166)	(0.0901)	(0.150)	(0.147)
$\ln(\text{intl. attacks})_{t-1}$	0.0867*	0.0249	0.0602**	0.0395	0.0389	0.0575*	0.0884***	-0.0094	0.0272	-0.0033
	(0.0463)	(0.0268)	(0.0256)	(0.0344)	(0.0347)	(0.0313)	(0.0318)	(0.0310)	(0.0298)	(0.0450)
$\ln(\text{domestic attacks})_{t-1}$	-0.0110	0.0438*	0.0869***	0.0559*	0.0926***	0.0488*	0.106***	-0.0018	0.0295	-0.0286
	(0.0376)	(0.0226)	(0.0237)	(0.0291)	(0.0264)	(0.0264)	(0.0285)	(0.0216)	(0.0225)	(0.0312)
					Multilateral aid					
Conflict_{t-1}	-0.738***	-0.222***	-0.422***	-0.120	-0.184*	-0.154	-0.225**	-0.183	-0.362***	-0.189
	(0.266)	(0.0841)	(0.0916)	(0.180)	(0.0949)	(0.216)	(0.0919)	(0.208)	(0.110)	(0.168)
$\ln(\text{intl. attacks})_{t-1}$	0.0430	0.0067	0.004	0.0351	0.0171	-0.0114	0.0414**	0.067	0.0009	-0.0206
	(0.0453)	(0.0206)	(0.0191)	(0.0490)	(0.0236)	(0.0483)	(0.0203)	(0.0442)	(0.0204)	(0.0379)
$\ln(\text{domestic attacks})_{t-1}$	0.0128	-0.005	0.0069	0.0015	0.008	0.0304	0.0251	-0.01	0.0233	-0.0482*
	(0.0478)	(0.0176)	(0.0178)	(0.0468)	(0.0213)	(0.0428)	(0.0165)	(0.0381)	(0.0197)	(0.0275)

Recipient clustered standard errors in parentheses. All regressions include control variables and year dummies, allocation regressions include recipient fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Aid estimates – armed conflicts with more than 1,000 casualties (dependent variable: log aid)

	All aid		Government		Education		Social & Health		Business & Trade	
	Selection	Allocation	Selection	Allocation	Selection	Allocation	Selection	Allocation	Selection	Allocation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					Bilateral aid					
Large scale conflict$_{t-1}$	0.155	-0.247**	-0.0496	-0.0305	0.0845	-0.168	0.0707	-0.107	-0.125	-0.294
	(0.549)	(0.105)	(0.175)	(0.183)	(0.173)	(0.141)	(0.209)	(0.0865)	(0.169)	(0.180)
ln(intl. attacks)$_{t-1}$	0.0863*	0.0309	0.0516*	0.0488	0.0113	0.0656**	0.0561*	0.0125	0.0075	0.01
	(0.0446)	(0.0276)	(0.0256)	(0.0353)	(0.0333)	(0.0298)	(0.0316)	(0.0298)	(0.0284)	(0.0428)
ln(domestic attacks)$_{t-1}$	-0.0157	0.0512**	0.0802***	0.0606**	0.0713***	0.0634**	0.0863***	0.0186	0.0243	-0.0156
	(0.0374)	(0.0251)	(0.0233)	(0.0298)	(0.0259)	(0.0247)	(0.0282)	(0.0222)	(0.0203)	(0.0301)
					Multilateral aid					
Large scale conflict$_{t-1}$	-0.672**	-0.151	-0.358***	-0.464**	-0.136	0.0575	-0.132	-0.215	-0.384***	-0.393**
	(0.284)	(0.105)	(0.109)	(0.222)	(0.108)	(0.248)	(0.108)	(0.220)	(0.121)	(0.192)
ln(intl. attacks)$_{t-1}$	0.0388	0.0079	-0.0043	0.0797	0.0051	-0.0164	0.0405**	0.0682*	-0.0111	-0.004
	(0.0427)	(0.0209)	(0.0191)	(0.0521)	(0.022)	(0.0449)	(0.0200)	(0.0405)	(0.0210)	(0.0373)
ln(domestic attacks)$_{t-1}$	0.0118	-0.002	0.0091	0.0280	0.0055	0.0271	0.0259	-0.002	0.00761	-0.037
	(0.0466)	(0.0178)	(0.0183)	(0.0457)	(0.0202)	(0.0383)	(0.0158)	(0.0359)	(0.0200)	(0.0264)

Recipient clustered standard errors in parentheses. All regressions include control variables and year dummies, allocation regressions include recipient fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Aid estimates – Heckman selection model (dependent variable: log aid)

	All aid		Government		Education		Social & Health		Business & Trade	
	Selection	Allocation	Selection	Allocation	Selection	Allocation	Selection	Allocation	Selection	Allocation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					Bilateral aid					
Conflict_{t-1}	0.289	-0.308***	-0.0785	-0.195	-0.208	-0.0628	-0.134	-0.0266	-0.202*	-0.261*
	(0.223)	(0.096)	(0.135)	(0.143)	(0.135)	(0.110)	(0.139)	(0.0797)	(0.115)	(0.150)
$\ln(\text{intl. attacks})_{t-1}$	0.0425	0.0356	0.0762***	0.0613*	0.0798**	0.0612**	0.101***	0.0095	0.0264	0.008
	(0.0339)	(0.0269)	(0.0276)	(0.0346)	(0.0305)	(0.0301)	(0.0316)	(0.0292)	(0.0269)	(0.0432)
$\ln(\text{domestic attacks})_{t-1}$	0.0127	0.0565**	0.105***	0.0760**	0.0957***	0.0599**	0.111***	0.0158	0.0448**	-0.0133
	(0.0262)	(0.0254)	(0.0227)	(0.0302)	(0.0255)	(0.0243)	(0.0260)	(0.0221)	(0.0211)	(0.0309)
					Multilateral aid					
Conflict_{t-1}	-0.379***	-0.228***	-0.260***	-0.140	-0.0869	-0.186	-0.164**	-0.253	-0.194**	0.231
	(0.132)	(0.0789)	(0.0785)	(0.174)	(0.0812)	(0.194)	(0.0804)	(0.183)	(0.0884)	(0.189)
$\ln(\text{intl. attacks})_{t-1}$	0.0068	0.0132	0.0274	0.0640	-0.0074	-0.0052	0.0512***	0.0744*	-0.0239	0.0186
	(0.0310)	(0.0203)	(0.0167)	(0.0506)	(0.021)	(0.0455)	(0.0165)	(0.0392)	(0.0180)	(0.0428)
$\ln(\text{domestic attacks})_{t-1}$	0.0242	0.0043	0.0430***	0.0121	-0.0071	0.0392	0.0413***	0.0042	0.00331	-0.0148
	(0.0281)	(0.0168)	(0.0146)	(0.0440)	(0.0185)	(0.0389)	(0.0149)	(0.0350)	(0.0137)	(0.0335)

Recipient clustered standard errors in parentheses. All regressions include control variables and year dummies, allocation regressions include recipient fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$